

ART 34 AMDT

I claim:

1. A process for sterilizing a contaminatable slurry, comprising the steps of
 - a. providing a sanitized fluid handling system,
 - b. pumping the slurry through the system at a predetermined pressure,
 - c. heating the slurry to a sterilizing temperature of about 210°F - 290°
5 for a predetermined time to sterilize the slurry,
 - d. cooling the sterilized slurry by transferring heat to the unsterilized slurry entering the process, and
 - e. transferring the sterilized slurry to a sanitized fluid collection device.
2. The process of claim 1, including the step of flushing the fluid handling system with a mist of nitrogen and a sanitizing chemical to sanitize the system.
3. The process of claim 1, wherein the sterilizing temperature is about 230°F - 270° F, the predetermined time is greater than 5 seconds, and the cooling temperature is below 100° F.
4. The process of claim 3, wherein the sterilizing temperature is about 250°F and the predetermined time is about 2 minutes.
5. The process of claim 1, wherein the sanitized fluid collection device is a storage tank, and including the steps of
 - f. flushing the fluid handling system with a mist of nitrogen and a sanitizing chemical to sanitize the system, and
 - 5 g. excluding oxygen from the storage tank, and
 - h. transporting the storage tank to a terminus for offloading of the slurry.
6. The process of claim 5, including the further steps of
 - i. offloading the slurry, and
 - j. repeating steps a - e.

7. The process of claim 1, including the steps of
 - f. flushing the fluid handling system with a mist of nitrogen and a hydrogen peroxide to sanitize the system,
 - g. providing a tank as the fluid collection device, and
 - 5 h. excluding oxygen from the tank by covering the sterilized slurry with a blanket of nitrogen.
8. The process of claim 1, wherein the fluid collection device is the supply system of a further industrial process.
9. The process of claim 1, wherein the slurry is kaolin or calcium carbonate.
10. The process of claim 1, including the step of mounting the fluid handling system on a mobile platform for transportability.
11. Fluid handling and sterilizing apparatus for sterilizing contaminatable slurries, comprising
 - a pump for pumping the slurry,
 - 5 a sterilizing unit for heating slurry to a sterilizing temperature,
 - a heat exchanger for transferring heat from the sterilized slurry to the unsterilized slurry to preheat the unsterilized slurry and cool the sterilized slurry,
 - 10 a piping circuit connecting the pump to the heat exchanger and connecting the heat exchanger to the sterilizing unit for handling the unsterilized slurry, and connecting the sterilizing unit to the heat exchanger and exiting the heat exchanger for handling the sterilized slurry, and
 - a pump for intaking unsterilized slurry and pumping slurry through the piping circuit at a predetermined pressure at a predetermined flow rate.

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12. The fluid handling and sterilizing apparatus of claim 11, wherein the sterilizing unit includes

a heating unit,

a second heat exchanger for transferring heat from the heating unit to the unsterilized slurry to raise the temperature of the unsterilized slurry to a sterilizing temperature,

a manifold for containing the heated slurry at the sterilizing temperature, and

a third heat exchanger for transferring heat from the sterilized slurry to the heating unit to cool the sterilized slurry.

13. The fluid handling and sterilizing apparatus of claim 12, wherein the manifold is sized to maintain the slurry at the sterilizing temperature for a predetermined time sufficient to fully sterilize the slurry.

14. The fluid handling and sterilizing apparatus of claim 12, wherein the heating unit comprises

a hot water boiler for heating water to a second predetermined temperature,

a second piping circuit interconnecting the hot water boiler, the second heat exchanger, and the third heat exchanger, and

a second pump for pumping water through the second piping circuit at a second predetermined flow rate.

15. The fluid handling and sterilizing apparatus of claim 14, wherein the first predetermined flow rate is about 17 psig, and the second predetermined flow rate is about 30 psig.

16. The fluid handling and sterilizing apparatus of claim 11, including a source of contaminatable slurry in the form of kaolin or calcium carbonate.

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17. The fluid handling and sterilizing apparatus of claim 11, where the pump is a peristaltic pump.

18. The fluid handling and sterilizing apparatus of claim 11, including a mobile platform mounting the apparatus to enable transportation to a variety of locations.